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# An Exploratory Study of Self-Efficacy's Network of Relationships.

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**An exploratory study of self-efficacy's network of relationships**

**Kendell-Brainard, Ginger Kay, Ph.D.**

**The Louisiana State University and Agricultural and Mechanical Col., 1990**

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**An Exploratory Study of  
Self-Efficacy's Network of Relationships**

**A Dissertation**

**Submitted to the Graduate Faculty of  
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**in**

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**by**

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**M.A., Louisiana State University, 1989**

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**Running Head: SELF-EFFICACY**

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## Self-Efficacy

### Abstract

This study explored the construct of self-efficacy and provided information about its relationships with intelligence, academic achievement, social skills, and family variables. Specifically, a correlational analysis examined the associations with academic and social self-efficacy, intelligence, academic achievement, and social skills. Exploratory univariate analyses investigated whether self-efficacy beliefs differed for students with varying family structures. Multiple regression analyses were utilized to determine significant predictors of self-efficacy. The results of the analyses indicated that academic self-efficacy was significantly correlated with intelligence, three areas of academic achievement, and social skills. Social self-efficacy was significantly correlated with social skills and two areas of academic achievement. No differences in self-efficacy beliefs for students with varying family structures were found. Additionally, the multiple regression analyses provided evidence that intellectual ability, academic achievement, social skills, and family income could significantly predict academic self-efficacy, and that social skills and mathematics achievement were the best predictors of academic self-efficacy. The aforementioned

## Self-Efficacy

variables also significantly predicted social self-efficacy, and social skills and written language achievement were the best predictors of social self-efficacy. Both regression analyses accounted for a sizeable amount of variance and reached significance.



## Self-Efficacy

Efficacy is the ability to be effective in dealing with one's environment. It involves a complex process whereby cognitive, social, and behavioral skills are organized into a course of action (Bandura, 1977a, 1977b, 1978, 1982a, 1986). Self-efficacy is a person's belief that he or she is capable of organizing and performing a successful course of action (Bandura, 1977a; Keyser & Barling, 1981; Schunk, 1984). Many times success is achieved only after alternative forms of behavior and strategies have been generated and performed. A person must feel capable of performing the task before he/she will persist at the task. People who doubt their self-efficacy will quickly give up, even though they may possess the requisite skills for success. A person must believe that he or she can effectively perform these skills to have self-efficacy (Bandura, 1982a; Schunk, 1984).

Much research has examined and evaluated Bandura's self-efficacy theory during the past 12 years. The purpose of the present study was to further explore some facets of the nomological network of self-efficacy which have received little investigation. These facets include the relationships between self-efficacy and the

constructs of intelligence, academic achievement, and social skills, as well as the relationships between self-efficacy and various familial variables such as marital and socioeconomic status.

Self-efficacy is only one theory which has been proposed to explain the relationship between cognitions and learning and social behaviors. Other popular theories include locus of control as proposed by Rotter (1966), learned helplessness as discussed by Seligman (1975), and attributions as reviewed by Weiner (1972a). A brief review of these theories and an extensive review of self-efficacy will now be presented.

#### Literature Review

##### Locus of Control

Some researchers (e.g., Lefcourt, 1981; Rotter, 1966) believe that in achievement situations, children's behavior is influenced by their locus of control beliefs. Locus of control (LOC) can be thought of as a generalized expectancy for internal or external control of reinforcements (Rotter, 1966). A person has "internal control" if he/she believes that outcomes are contingent on his/her behavior or on relatively stable characteristics like ability. On the other hand, a person has "external control" if he/she believes that

outcomes are the result of factors beyond his or her control (e.g., luck, task difficulty, powerful others) (Rotter, 1966).

Locus of control can affect achievement behavior through the expectancy that reinforcement will follow certain behaviors (Rotter, 1966). When students have an internal locus of control and believe that their behavior influences outcomes, academic success should increase the likelihood of future instrumental academic behaviors. However, if no contingency is believed to exist between behavior and outcomes (i.e., external LOC) academic mastery may not increase the expectancy of success or increase the likelihood of important academic behaviors (Rotter, 1966).

Locus of control also is related to intellectual functioning. Lachman (1986, Lachman & Leff, 1989) utilized the locus of control construct and examined how it relates to intellectual functioning. In Lachman's 1986 study, she compared college students and elderly adults on Levenson's (1974) locus of control instrument and the Personality in Intellectual Contexts Inventory (PIC) (Lachman, Baltes, Nesselroade, & Willis, 1982). The PIC assesses attributions and thoughts about control over intellectual functioning. Lachman's (1986) results indicated that the elderly were more external than

college students on the intelligence dimensions of the PIC.

Lachman and Leff (1989) examined how LOC and intellectual functioning changed over a 5-year period for elderly adults. They also used the Levenson (1974) LOC scale and the PIC. Their results showed that significant changes occurred for intellectual control beliefs. In particular, these elderly adults reported an increased dependence on others to carry out cognitive tasks.

Future elaborations of the locus of control theory (Rotter, 1975) further clarified the relationship between LOC and academic achievement in students. The value of the expected reinforcement was added as an important predictor of the occurrence of relevant academic behaviors. Thus, in order for such behavior to occur, students must expect that their behavior effects particular outcomes and they must value these outcomes. For instance, even with the belief that one must study to attain a high grade on a test, if this high grade isn't valued the student may not study for the test (Evans, 1987).

### Attributions

This reconceptualized LOC theory is similar to the expectancy-value theory of motivation discussed by Weiner (1972a). Weiner (1972a) hypothesized that both the

expectancy that the behavior will lead to a certain outcome and the incentive value of the outcome jointly determine the performance motivation for a student. Weiner's approach (1979) in examining determinants of classroom achievement has been attributional. His main postulates are that a relation exists between student's attributions for academic success/failure and achievement, and that individuals have different beliefs about the causes of their successes and failures.

Attributions begin with the question "why?". For instance, a student may ask "Why am I failing math?". Weiner (1979) proposed that attributional determinants of achievement could be classified into 3 general areas: locus of cause (internal vs. external), stability (stable vs. unstable), and controllability (controllable vs. uncontrollable). The stability dimension affects cognitive changes in expectancy following success or failure (Weiner, 1979). If success occurs, and the causes for that success are perceived to be stable or unchanging, then the prospect of success will have an increase in expectancy. On the other hand, if the causes are believed to be unstable, then there will be some doubt that the same outcome will occur.

Learned Helplessness

Learned helplessness has been proposed as a determinant of the relationship between cognitions and behavior (Seligman, 1975). Learned helplessness theory states that uncontrollable events affect both motivation and cognitions. The belief that an outcome is independent of responding (i.e., uncontrollable) reduces the motivation to control the outcome and interferes with learning that a response could control the outcome (Seligman, 1975). Cognitive distortions may occur which make learning more difficult, even when a response is successful. According to learned helplessness theory, individuals may come to believe that they are "helpless" to control events because they believe that success and failure are independent of their actions. When this occurs, motivation to change the situation decreases dramatically (Seligman, 1975).

Learned helplessness has been shown to occur in academic situations with students. Dweck and Reppucci (1973) demonstrated that after a failure experience, a group of children did not perform the response required to succeed even though they were able to do so. They found that these children took little personal responsibility for their successes and failures. The responsibility they did take was attributed to their

ability (something they couldn't control) rather than to their effort (something they could control) (Dweck & Reppucci, 1973).

In a related study, Dweck (1975) also identified a group of helpless children. She had 2 experimental conditions, a success only group where the children were only exposed to situations where they achieved success and an Attribution Retraining group which taught them to take responsibility for failure and to attribute it to lack of effort. Dweck's (1975) results showed that the latter group had greater increases in their future performances. Additionally, the Attribution Retraining group showed an increase in emphasizing low motivation as a determinant of failure (Dweck, 1975).

#### Self-Efficacy: A Conceptual Overview

Self-efficacy theory also has been utilized to explain the relationship between cognition and behavior. Self-efficacy theory was originally developed as a way of predicting psychological changes resulting from different modes of treatment of phobias. Bandura (1977a) proposed that psychological procedures alter the level and strength of self-efficacy. In turn, self-efficacy beliefs influence the types of things people do (Bandura, 1977a). People avoid doing things which they believe exceed their abilities, but they attempt and confidently

perform those activities that they believe they are capable of doing. Efficacy expectations are thought to determine the amount of effort and time people spend trying to deal with the environment in the face of obstacles and negative experiences (Bandura, 1977a, 1982b). If perceived self-efficacy is strong, efforts are more active. Efficacy beliefs alone will not guarantee successful performance if the requisite skills are missing. Having the requisite skills does not guarantee performance if low motivation exists to perform these skills. However, if skills and motivation are present, efficacy expectations are a major determinant of what people will do, how much effort they will employ, and how long they will persist (Bandura & Cervone, 1983).

Individual's judgments of their capabilities also influence thought patterns and emotional reactions in dealing with the environment (Bandura, 1986). People who believe that they are inefficacious in coping with demands tend to focus on their inefficiency and exaggerate potential difficulties. In contrast, people who have a strong sense of efficacy focus their attention and effort on the demands of the task and minimize potential difficulties (Bandura, 1986). Thus, self-efficacy percepts, as proposed by Bandura (1977a, 1982b,



1986) are believed to be a strong mediating variable between cognition and behavior.

Self-efficacy information is derived from four primary information sources: performance attainments, vicarious experiences of observing other's performance, verbal persuasion, and physiological states (Bandura, 1977a, 1982a, 1986). Self-efficacy beliefs are the product of an intricate process requiring the cognitive processing of these diverse sources of efficacy information (Bandura, 1989a).

Performance attainments are the most influential source of efficacy information because they are based on one's own experience (Bandura, 1977a). A successful experience raises efficacy appraisals, while repeated failures lower them (Schunk, 1984). However, after a strong sense of self-efficacy is attained from repeated successes, occasional failures will not greatly affect efficacy beliefs.

Vicarious experiences can raise self-efficacy beliefs by seeing people perform successfully (Bandura, 1977a; Schunk, Hanson, & Cox, 1987). People may believe that if someone else can do something, they should be able to as well. Alternately, self-efficacy expectations can be lowered by watching someone fail at something despite high effort (Zimmerman & Ringle, 1981).

Several factors may modify the effectiveness of vicarious experiences on perceived self-efficacy (Bandura, 1977a, 1986; Schunk, 1987). First, vicarious experiences are more influential when people have had little prior experience on which to judge their personal competence. Second, when outcomes are clearly apparent, vicarious experiences will be more influential. Finally, when the person observed performing the task has some things in common with the observer, the effectiveness of vicarious experiences will be enhanced (Schunk, 1987).

Verbal persuasion can increase self-efficacy to the extent that the persuasion leads to greater effort which results in success (Bandura, 1977a; Relich, Debus, & Walker, 1986). This success will then create a sense of personal efficacy. However, if the persuasion doesn't lead to greater effort or success, efficacy will not be enhanced (Schunk, 1982b).

Finally, physiological arousal state can enhance self-efficacy beliefs if the success is attained when the person has low to moderate physiological arousal (Bandura, 1977a). High arousal usually inhibits successful performance. Thus, because success is more likely to occur under low to moderate arousal states, efficacy also is more likely to be enhanced under such conditions.

Cognitive processing plays an important role in determining the effect of efficacy information obtained from these four sources (Bandura, 1977a). In this notable treatise on self-efficacy, Bandura (1977a) stated that information acquired from the self-efficacy determinants does not influence self-efficacy directly. Instead, the effectiveness of the information depends on how it is cognitively appraised and processed. Such processing involves two components (Bandura, 1986). The first component regards the types of information people attend to and use as indicators of personal efficacy. Each of the four determinants of efficacy information has its unique set of efficacy indicators. The second component relates to the process whereby people weight and combine the efficacy information obtained from the different sources.

Bandura (1977a) states that the social, situational, and temporal circumstances under which events occur factor into the appraisal of efficacy information. Additionally, a major tenet of this investigation proposes that the overall cognitive ability level of the subject, as measured by an intelligence test, also relates to self-efficacy beliefs. Because cognitive processing of efficacy information is required for the formation of efficacy beliefs, it may be that individuals

with lower cognitive ability levels have a more difficult time processing and integrating efficacy information, which might then lead to lower self-efficacy beliefs. However, no research has documented this.

Although perceived self-efficacy is functionally related to behavior, several factors may affect the strength of the relationship (Bandura, 1982a). Discrepancies may occur between self-efficacy beliefs and behavior due to faulty self-knowledge, unforeseen situational constraints on action, misjudgments of task requirements, inadequate judgments of performance, or disincentives to act on perceived self-efficacy beliefs (Bandura, 1982a; Schunk, 1984). Here again, the role of cognitive ability level would seem pertinent. Persons with lower cognitive ability levels may be more likely to inaccurately assess their self-knowledge, their performance, or the task requirements. In turn, this may affect their self-efficacy beliefs and attenuate the relationship between self-efficacy and behavioral performance. Alternatively, persons with lower cognitive abilities may have lower skills which would lead to decreased performance attainments and lower self-efficacy beliefs. This alternative could be tested by examining a person's skills as well as self-efficacy beliefs.

In self-efficacy theory, Bandura (1977a) differentiated between efficacy expectations and outcome expectations. An efficacy expectation reflects the belief that one can successfully execute the required behavior to produce a given outcome. Outcome expectations reflect the belief that a certain behavior will lead to a certain outcome. Efficacy and outcome expectations are differentiated because one may believe that a certain behavior will result in a certain outcome, but may not believe that he or she can perform the behavior(s) required to produce the outcome. Conversely, a person may believe that he or she can perform a behavior, but may not believe that the behavior will produce the desired outcome (Bandura, 1977a).

In summary, self-efficacy is the belief that one can perform an action or set of actions that lead to a certain outcome. Such beliefs are hypothesized to be influenced primarily through performance attainments, vicarious experiences, verbal persuasion, and physiological arousal states (Bandura, 1977a; Schunk, 1982b; Schunk, 1984; Zimmerman & Ringle, 1981). Cognitive processing of efficacy information is important in the formation of efficacy beliefs. Additionally, efficacy beliefs are differentiated from outcome

expectations, which are beliefs that performance of a behavior will result in a certain outcome.

#### Family Variables Affecting Self-Efficacy

A child's initial sense of personal efficacy arises from interactions with his or her family and environment (Bandura, 1981). Infants soon learn that certain actions bring distinctive results. Such learning provides the beginnings of personal efficacy beliefs. These first efficacy experiences are centered in the family. Bandura (1981) suggests that there are several family structure variables which create different references for efficacy appraisal. These include the number of siblings and how far apart they are in age. Bandura (1981) proposes that one area which needs to be investigated pertains to how different family structures affect a child's sense of self-efficacy. In particular, Bandura (1981) lists the following research questions: (a) Is there a difference between self-efficacy beliefs of first born or only children and children with at least one sibling?, (b) Does ordinal position exert differential effects on achievement or social self-efficacy?, and (c) Do self-efficacy beliefs differ for children with siblings close in age as opposed to children with siblings spaced farther apart? Other structural family differences which

may affect self-efficacy include the number of siblings, parental marital status, and family socioeconomic status.

#### Conceptual Issues with Self-Efficacy Theory

The major conceptual problem with self-efficacy theory resides primarily with the terminology, which is somewhat inconsistent and ill-defined. Various researchers have used the following terms when discussing self-efficacy: (a) response-outcome expectations, (b) efficacy expectations, and (c) outcome expectations (Evans, 1987). Response-outcome expectations are defined as an objective belief that a given behavior results in a particular outcome (e.g., studying results in good test grades). An efficacy expectation is a personal belief of one's ability to execute certain behaviors (e.g., "can I introduce myself?"). Outcome expectations refer to whether the individual believes that once the behavior is performed, certain outcomes will follow (e.g., "if I study, I will do well on the test") (Bandura, 1982a).

The conceptual premise that efficacy beliefs and outcome expectations are critical motivators of behavior is accepted by most researchers. However, the variability in terminology no doubt hinders complete understanding of the theory and its applications (Evans, 1987). For the area to continue its empirical development the terminology needs to be consistent.

Another conceptual consideration relates to the indeterminacy of the relationship of self-efficacy to other behavioral mediators such as competence and incentives. Kazdin (1978) questions how competence and incentives for performance can be assessed independently of self-efficacy. He believes that researchers need to determine how self-efficacy is important when competence is developed and incentives are available. Further, Kazdin (1978) states that self-efficacy theory needs to specify when competence and incentives are at "appropriate" levels to allow self-efficacy to dictate behavior. Kazdin (1978) concludes that the clarity of self-efficacy theory may depend upon specification of precisely how competence and incentives relate to performance.

Despite the aforementioned criticisms, self-efficacy is still a valid theory. Self-efficacy, as well as other "self" constructs, cannot be operationally defined. This makes it difficult to confirm its existence or prove that it differs from other "self" constructs. Byrne (1984) states that construct validity must be established when an instrument has been developed for a construct which cannot be operationally defined. This can be accomplished through examination of the construct's nomological network. This involves examining the



instrument's internal structure, and examining correlations with the instrument and other instruments which measure related constructs as well as mutually exclusive constructs.

Many similarities do exist between self-efficacy and other "self" constructs (e.g., some type of self belief is believed to be instrumental in determining behavior). However, an important strength of self-efficacy theory is its emphasis on beliefs about behavior and how it affects the surrounding environment. If a person doesn't feel capable of performing a certain behavior which could have a desired effect on the environment, he or she could be taught this behavior.

Another strength of self-efficacy theory is that a measure has been developed which has demonstrated some construct validity for self-efficacy. This measure is called the Student Self-Concept Scale (SSCS) and it will be elaborated on in the next section.

### Self-Efficacy Measures

Bandura (1977a) first devised a scale to measure self-efficacy which requires subjects to rate the strength of their expectations that they can execute a certain behavior. Bandura (1977a) described his scale as a 100 point probability scale which has 10 unit intervals with 10 being "quite uncertain", 50 being "moderately

certain", and 100 being "certain". Subjects circle the number which most accurately reflects their efficacy beliefs. Many researchers have used a similar 100 point scale in their measurement of self-efficacy beliefs. However, some researchers have developed their own unique self-efficacy scale.

Schunk (1988) has conducted much research on self-efficacy. His self-report efficacy scale is similar to Bandura's and has values ranging from 10 to 100 in intervals of 10. Verbal descriptors occur at several points: 10 = "not sure", 40 = "maybe", 70 = "pretty sure", 100 = "really sure". Schunk (1988) has students practice rating their perceived efficacy on a concrete task to familiarize them with self-efficacy judgement before they rate their efficacy for the experimental variable. Schunk (1988) has used his scale in research examining academic achievement and self-efficacy percepts.

Self-efficacy scales for children have been developed to measure creativity beliefs (Schack, 1986), scholastic self-efficacy (Keyser & Barling, 1981; Stedtnitz, 1986), and self-efficacy for social interactions (the Children's Self-Efficacy for Peer Interactions or CSPI, Wheeler & Ladd, 1982). Additionally, a multidimensional scale which measures

self-efficacy for both academic and social behaviors was developed by Gresham, Evans, and Elliott (1988b), and was called the Academic and Social Self-Efficacy Scale (ASSESS).

There does not appear to be a "best" way to measure self-efficacy beliefs. Scales vary widely in format and item content. Several researchers have developed seemingly adequate scales using different formats. This proposal suggests that scales which are behaviorally based, require subjects to rate their confidence in performing behaviors, measure efficacy beliefs in different domains, and measure both efficacy beliefs and outcome expectations have face validity and appear to be the most promising measures of self-efficacy.

One such scale which meets the validity criteria is the Student Self-Concept Scale (SSCS) (Gresham, Elliott, & Evans, in preparation). This scale is currently being standardized and published. Although it is called a self-concept scale, it actually measures efficacy beliefs in general and in the academic, social, and physical domains (Gresham et al., in preparation). Additionally, the SSCS contains some items measuring outcome expectations.

The SSCS is a modification of the ASSESS which was developed to assess student's self-efficacy judgments and

to predict academic achievement and sociometric status (Gresham et al., 1988b). The ASSESS contained 28 items reflecting academic and social self-efficacy and outcome expectations. Gresham et al. (1988a, 1988b) gave the ASSESS to 336 students and found that academic self-efficacy beliefs were good predictors of academic achievement and social self-efficacy beliefs were good predictors of sociometric status. Additionally, Gresham et al. (1988a) found that mainstreamed mildly handicapped students had lower academic and social self-efficacy beliefs as measured by the ASSESS than non-handicapped students.

The SSCS contains the academic and social self-efficacy and outcome expectation items from the ASSESS as well as items measuring general and physical self-efficacy beliefs and outcome expectations. During the initial validation study of the SSCS, significant effort was employed to establish the construct validity of the scale (Kendell, 1988). This was accomplished by examining the instrument's internal structure and external relationships with other similar constructs as suggested by Byrne (1984). The SSCS was found to have an internal consistency coefficient of .92 and a stable factor structure. The scale also demonstrated significant relationships with measures of self-concept,

social skills, and sociometric status (Kendell, 1988). This scale could play a major role in the future of self-efficacy research because it provides a standardized and psychometrically sound means of measuring the construct.

The Gresham et al. (1988a, 1988b) and Kendell (1988) studies provided some information on the construct validity of the SSCS. However, other constructs, such as intelligence, are also in the nomological network of self-efficacy. Additionally, the relationship between self-efficacy and academic achievement as measured by a standardized, individually administered achievement test has not been investigated. It is suggested that such research needs to be done to provide more information on the construct validity of the SSCS.

#### Relationships with Self-Efficacy

Self-efficacy beliefs have evidenced significant relationships with many other constructs including: sociometric status (Gresham et al., 1988b; Kendell, 1988), self-concept (Kendell, 1988; Wheeler & Ladd, 1982), social skills (Kendell, 1988), memory (Bandura, 1989), aggression (Perry, Perry, & Rasmussen, 1986), peer interaction (Ollendick & Schmidt, 1987), educational classification status (Gresham et al., 1988a), academic achievement (Schunk, 1988), teaching behavior (Gibson & Dembo, 1984), reading and writing ability (Shell, 1988),

cognitive developmental level (Kaley & Cloutier, 1984), overall school achievement (Hillman, 1984), and teacher and parent inferred self-efficacy beliefs (Gresham et al., 1988a; Kendell, Hebert, & Gresham, 1989). Research relevant to the current study will be highlighted next.

Schunk (1984, 1988) has conducted several examinations of specific self-efficacy beliefs and academic achievement. Most of Schunk's research involves measuring a student's self-efficacy for solving certain mathematics problems and then attempting to manipulate that belief through goal setting, feedback, modeling, or rewards. Then, he examines changes in mathematics performance. For example, Schunk (1985a) found that when students set proximal goals their self-efficacy was enhanced and they made faster progress in their mathematics curriculum. Schunk (1983b) found that giving students performance feedback enhanced their self-efficacy beliefs as well as their academic performance. Schunk (1984, 1988) has demonstrated much success in increasing academic performance by enhancing self-efficacy beliefs.

Several investigators have examined the relationship between self-efficacy beliefs and social behavior. Gresham et al. (1988b) demonstrated that social self-efficacy beliefs predicted children's sociometric status.

Kendell (1988) provided evidence that students with higher self-efficacy scores are more likely to be sociometrically classified as popular while student's with lower scores are more likely to be classified as rejected. Here, self-efficacy was measured by the SSCS and sociometric status was determined by peer nominations.

Wheeler and Ladd (1982) found that children's self-efficacy for peer interactions correlated significantly with a play nomination sociometric measure, with a peer rating of social influence, and with a teacher rating of social efficacy. Moreover, Ollendick and Schmidt (1987) found that outcome expectations and peer preference values were significant predictors of peer interactions.

Social skills have also demonstrated significant relationships with self-efficacy. Kendell (1988) used the Social Skills Rating System (Gresham & Elliott, 1990) as the measure of social skills and the SSCS (Gresham et al., in preparation) as the self-efficacy measure. These analyses revealed significant correlations between elementary student's and junior and senior high student's social skills and self-efficacy beliefs.

Bandura and others have provided much research documenting the effects of the four hypothesized determinants of self-efficacy beliefs, however, this

proposal suggests that more research needs to focus on the construct itself. Specifically, more information is needed which examines the nomological network of self-efficacy. Previous research has examined some of the relationships within the nomological network of self-efficacy. The highlights of this research will be summarized next.

#### Summary of Self-Efficacy Theory and Relevant Research

Self-efficacy is the belief that one can perform a behavior which will have a desired effect. Bandura (1977a) hypothesized 4 determinants of efficacy beliefs. These are: verbal persuasion, performance attainments, vicarious experiences, and physiological arousal state. Much research has examined self-efficacy theory in the past 12 years, and the research pertaining to self-efficacy and the constructs of intelligence and academic achievement are of particular interest to this study.

Schunk (1984, 1988) has conducted the most research on self-efficacy and academic achievement. The 1984 and 1988 articles are reviews of his findings. Schunk (1984) has provided evidence that self-efficacy can be enhanced through various interventions and that this positively influences achievement. He has used attributional feedback, goal setting, reward contingencies, and modeling for his interventions. At first glance Schunk's



research appears to be extensive, however, upon closer scrutiny it is actually quite limited. Schunk usually had small sample sizes (less than 15) who were students evidencing academic difficulties, he measured self-efficacy beliefs for 1 area (e.g., mathematics), and he measured academic achievement for 1 subject. Additional research needs to further investigate the relationship between self-efficacy and academic achievement using a larger and more diverse sample and more varied measures of academic achievement and self-efficacy.

As discussed previously, Gresham et al. (1988a) also examined the relationship between self-efficacy and academic achievement. Academic self-efficacy beliefs were found to significantly predict academic achievement as measured by a group-administered achievement test. This initial research needs to be verified and enhanced by examining the relationship between efficacy and achievement as measured by well-standardized and psychometrically sound measures of each construct.

Several studies have examined the relationship between self-efficacy and social skills (Gresham et al., 1988a; Kendell, 1988; Wheeler & Ladd, 1982). The results of the Gresham et al. (1988a) study indicated that social self-efficacy beliefs moderately predicted sociometric status. However, these researchers didn't use a direct

measure of social skills (e.g., a social skills questionnaire). Thus, while their research provides some initial information about such relationships, further investigation needs to be performed.

No research could be found which investigated the important relationships with cognitive ability level, overall academic achievement, or familial variables. This may be because an adequate measure of self-efficacy has previously not been available. Fortunately, the Student Self-Concept Scale (Gresham et al., in preparation), a reliable and valid self-efficacy measure, is now available. Thus, these important areas can now be investigated.

The current study was conducted to remediate some of the deficits in current self-efficacy research as well as to provide more evidence on the construct validity of the SSCS. Specifically, various relationships with self-efficacy were examined which had previously received little attention. These include the relationships with cognitive ability level, academic achievement, social skills, and familial variables.

#### Research Hypotheses

1. It is hypothesized that the academic factor of the Student Self-Concept Scale (SSCS), a measure of self-efficacy, will be significantly correlated with

intelligence test scores. Previous research has shown that intelligence is related to academic achievement (Wechsler, 1974; Kaufman & Kaufman, 1983). Additional research has indicated that achievement is related to self-efficacy (Schunk, 1988).

2. It is hypothesized that the academic factor of the SSCS will be significantly correlated with academic achievement test scores. Gresham et al. (1988a) demonstrated that the academic factor from the ASSESS, a forerunner of the SSCS, was a good predictor of academic achievement as measured by a group achievement test. The academic factor of the SSCS is very similar to the academic factor of the ASSESS, thus it is believed the SSCS's academic factor will be significantly correlated with standardized academic achievement test scores.

3. It is hypothesized that social skills will be significantly correlated with the social self-efficacy factor. It is also hypothesized that social skills will not be significantly correlated with the academic self-efficacy factor. Kendell (1988) demonstrated that social skills were moderately correlated with the SSCS.

4. It is hypothesized that family variables (e.g., family income, number of siblings) will have a relationship with self-efficacy beliefs. These

relationships have previously not been investigated.

Exploratory analyses will examine these relationships.

5. It is hypothesized that academic achievement, intelligence, social skills, and family income will be significant predictors of self-efficacy. Academic achievement and social skills have previously been shown to be related to self-efficacy, and it is hypothesized that these constructs, along with intelligence and family income, will be significant predictors of self-efficacy beliefs.

6. It is hypothesized that the resulting analyses will support the construct validity of the SSCS. Byrne (1984) stated that examining relationships within a construct's nomological network helps provide construct validity evidence. It is believed that intelligence, social skills, and academic achievement are all in the nomological network of self-efficacy. Thus, in examining their relationships to self-efficacy, information about its construct validity will be produced.

#### Method

##### Subjects

Subjects were 52 children ages 8-16 who were referred for psychoeducational evaluations at a multidisciplinary evaluation center in a large, southern metropolitan city. Additionally, 20 more children ages

8-16 were evaluated in locations elsewhere in the South. Most of these subjects had high intellectual ability levels and were not evidencing any academic difficulties. These subjects were utilized in order to obtain a relatively more heterogeneous sample. Table 1 presents demographic data about the subjects.

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Insert Table 1 about here  
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### Instruments

One cognitive ability measure, one academic achievement measure, one measure of social skills, and one measure of self-efficacy were used to assess the children. Additionally, a demographic questionnaire was used to obtain information on family variables.

The Student Self-Concept Scale (SSCS) (Gresham et al., in preparation) is a self-report scale on which students indicate how confident they are that a statement describes him/herself. The scale utilizes a 3-point rating ranging from "0 = Not at All Confident" to "2 = Confident". A 7-item lie scale is built into the scale. Items were generated from items from the domain of self-concept rephrased in terms of self-efficacy. Five underlying factors are hypothesized to exist for the scale: Academic Self-Efficacy Beliefs, General Self-

Efficacy Beliefs, Social Self-Efficacy Beliefs, Physical Self-Efficacy Beliefs, and Outcome Expectations. The scale is currently being standardized, and the number of items to be included on the final version of the scale has not yet been determined. This study used all 75 items which were utilized for the standardization sample.

A preliminary investigation of the SSCS (Kendell, 1988) provided initial evidence for the scale's reliability and validity. This research utilized 242 elementary and secondary school students. The internal consistency for the scale was .92 and 4 reliable factors (coefficient alphas were .85 or higher) were obtained. Additionally, significant correlations were obtained between the SSCS and 2 measures of self-concept and 1 measure of social skills (Kendell, 1988).

The Wechsler Intelligence Scale for Children - Revised (Wechsler, 1974) was used to measure cognitive ability level. The WISC-R is the most widely administered test of cognitive ability with school-age children (Witt, Elliott, Gresham, & Kramer, 1988). The test is comprised of two subscales, Verbal and Performance, and twelve subtests. Six subtests are on each subscale. The WISC-R is designed to provide a global measure of intelligence. It is well standardized and is statistically and technically adequate (Witt et

al., 1988). The full scale score was used as the measure of intellectual ability.

The Woodcock-Johnson Psychoeducational Battery (Part II) (Woodcock, 1978) was used to measure academic achievement. Like the WISC-R, the Woodcock-Johnson is a widely used, well-standardized and statistically sound individually administered test (Witt et al., 1988). The Woodcock-Johnson contains three tests measuring reading achievement, two tests measuring mathematics achievement, two tests measuring written language achievement, and three tests measuring knowledge. Only the tests measuring reading, mathematics, and written language achievement were used for this study.

The Social Skills Rating System--Student Self Report Scale (SSRS) (Gresham & Elliott, 1990) was utilized to measure social skills. The SSRS is a rating scale on which students rate their social behavior on a 3-point frequency dimension (Never True, Sometimes True, Very Often True). There are 34 items on the elementary form and 39 on the junior/senior high form. Initial evidence indicates that both versions have a stable factor structure. The elementary form has four factors (Cooperation, Assertion, Self-Control, and Empathy), and the junior/senior high form has three factors (Self-control, Assertion, and Cooperation). Preliminary

evidence also indicates adequate internal consistency (coefficient alpha = .96), and good criterion-related validity (Clark, Gresham, & Elliott, 1985; Gresham, Elliott, & Black, 1987).

### Procedure

All parents of students ages 8 - 16 referred to the developmental diagnostic center for a psychoeducational evaluation were asked for permission for their children to participate in the study. They were assured that confidentiality of their responses would be maintained and that the data collected on the SSCS and SSRS was for research purposes only. Three licensed psychology examiners with Master's degrees, one licensed psychologist, and one psychology intern collected the data at the evaluation center. Psychology graduate students as well as school psychology interns collected the data outside of the center. The WISC-R was administered first followed by the Woodcock-Johnson. Then, the SSCS and SSRS were administered. All instructions and items for both scales were on tape. Subjects simply listened to the tape and put their answers on the answer sheet. The order of the SSCS and the SSRS was varied so that approximately half of the subjects completed the SSCS first and the other half completed the SSRS first.



### Results

All data were analyzed using the statistical programs available with Statsoft, Inc. The data analyses consisted of three major types: (a) correlation analyses, (b) multiple regression analysis, and (c) univariate analyses.

#### Correlational Analyses

A correlational analysis of the data was conducted first. This analysis was used to answer the research hypotheses regarding the relationships between self-efficacy, intelligence, achievement, social skills, and family variables. The variables included in this analysis were as follows: (a) social self-efficacy, (b) academic self-efficacy, (c) social skills, (d) intellectual ability, (e) reading achievement, (f) mathematics achievement, (g) written language achievement, and (h) family income. The correlation matrix was protected for Type I error rate using a Bonferroni procedure which set the alpha level at .002. The correlations which were significant at the .002 level or higher are presented in Table 2.

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Insert Table 2 about here

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As shown in Table 2, it is apparent that the expected relationships between self-efficacy, intelligence, achievement, and social skills were verified. The academic self-efficacy subscale demonstrated significant relationships with the full scale intelligence score, the reading, math, and written language achievement scores, and both social skills scores. The social self-efficacy subscale demonstrated significant correlations with the math and written language achievement scores as well as both social skills scores.

Close examination of Table 2 reveals two clusters of high correlations. These clusters are for self-efficacy and social skills, and for IQ and achievement. The correlations between the two self-efficacy scores and social skills were similar (approximately .70). The correlations between the IQ and achievement test scores ranged from .65 to .89.

#### Multiple Regression Analyses

A series of exploratory multiple regression analyses was conducted to provide further information about the relations between self-efficacy and social skills, intellectual ability, academic achievement, and income. The goals were to determine whether these variables predicted self-efficacy, as well as to obtain the most

parsimonious prediction equation. First, intellectual ability, social skills, reading, math, and written language achievement, and family income were entered into two separate, simultaneous regression equations in order to determine how well they could predict academic and social self-efficacy, respectively. A simultaneous analysis was completed first in order to determine how well all of the variables together could predict self-efficacy. These results are presented in Table 3.

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Insert Table 3 about here

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As can be seen from Table 3, the equation with academic self-efficacy as the criterion was significant,  $F(6,41) = 12.42$ ,  $p < .0001$ , and accounted for 65% of the variance. Similar results were obtained with social self-efficacy as the criterion,  $F(6,41) = 8.43$ ,  $p < .0001$ , and accounted for 55% of the variance. Thus, both regression equations utilizing all variables of interest were highly significant.

Table 3 also shows that social skills was the only significant, individual predictor and accounted for much of the variance in both analyses. Thus, the exploratory regression analyses were repeated with social skills eliminated from the analyses in order to determine

whether income, intellectual ability, and achievement could significantly predict academic and social self-efficacy.

Table 4 presents the results of the regression analyses with social skills removed from the predictive equation. With academic self-efficacy as the criterion,

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Insert Table 4 about here

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the simultaneous regression equation with income, intellectual ability, and academic achievement was significant [ $F(5,55) = 6.18, p < .001$ ], and accounted for 36% of the variance. With social self-efficacy as the criterion, the equation was significant [ $F(5,55) = 2.51, p < .05$ ] and accounted for 19% of the variance. Math was the only significant predictor of academic self-efficacy, and there were no significant predictors for social self-efficacy.

The last set of regression analyses utilized a step-wise regression procedure in order to obtain the most parsimonious predictive equation for academic and social self-efficacy, respectively. Table 5 presents these results.

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Insert Table 5 about here  
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As can be seen in Table 5, social skills as measured by the SSRS was the best predictor of academic self-efficacy [ $F(1,51) = 48.66$ ,  $p < .0001$ ], accounting for 48% of the variance. The addition of math achievement accounted for an additional 16% of the variance, yielding a significant two-variable model [ $F(2,49) = 44.18$ ,  $p < .0001$ ,  $R^2 = .64$ ]. The addition of written language and reading achievement, intellectual ability, and income did not add significantly to the prediction.

Table 5 also shows that social skills was the best predictor of social self-efficacy [ $F(1,51) = 50.89$ ,  $p < .0001$ ], accounting for 50% of the variance. The addition of written language achievement accounted for an additional 4% of the variance, [ $F(2,47) = 27.92$ ,  $p < .0001$ ,  $R^2 = .54$ ]. Family income, math and reading achievement, and intellectual ability did not add significantly to the prediction.

#### Univariate Analyses

Univariate analyses were utilized to determine if familial variables were systematically related to self-efficacy beliefs. Bandura (1981) hypothesized that various family structure variables may influence self-

efficacy. Six univariate t-test analyses evaluated the relationship between parental marital status, number of siblings, and age of siblings with academic and social self-efficacy beliefs. Academic and social self-efficacy beliefs were the dependent variables in all analyses. The independent variables were: (1) parent's marital status (married or divorced), (2) number of siblings (0 or more than 0), and (3) siblings age (within 4 years of subject or not). None of the univariate analyses were significant. Additionally, family income was included in the correlational analysis and failed to reach significance for self-efficacy.

#### Discussion

The purposes of the present study were to explore some facets of the self-efficacy construct which had previously received little investigation, and to provide further construct validity evidence for the Student Self-Concept Scale (SSCS). The SSCS was used as the self-efficacy measure. This is a new scale which is in the process of being standardized and published. It contains subscales which measure academic, social, physical, and general self-efficacy beliefs. Additionally, it contains a 7-item lie scale, and a 15-item scale which measures outcome expectations. The relationships between academic and social self-efficacy, intelligence, academic

achievement, social skills, and various familial variables (e.g., marital status and income) were examined in this study. The following discusses the results with respect to the hypotheses.

It was hypothesized that significant correlations would be obtained between the SSCS academic factor and intellectual ability and academic achievement. The correlational analysis revealed the expected significant correlation between the SSCS academic factor and the intelligence quotient obtained from the WISC-R. One possible explanation for this finding is that the academic self-efficacy factor may simply measure beliefs about behaviors that students with higher abilities can perform more competently than students with lower abilities. For example, one academic self-efficacy item states "I can do my math work without help". It's plausible to expect a student whose intellectual ability level is in the high average range (110-120) to feel more efficacious at doing math independently than a student whose intellectual ability is in the low average range (80-90).

Another possible explanation for the moderately strong relationship between intelligence and academic self-efficacy relates back to Bandura's postulates in his original treatise on self-efficacy. Bandura (1977a)

hypothesized that there are four determinants of self-efficacy, and he postulated that performance attainments are the most influential determinant. Performance attainments are most influential because they are based on one's own experiences (Bandura, 1977a). It is likely that students with lower intellectual ability levels have had to struggle harder to attain academic success and have had somewhat fewer successful learning experiences (performance attainments) than students with higher ability levels. Consequently, their self-efficacy beliefs are not as strong as higher ability students who have had more academic performance attainments. Potential evidence for this hypothesis is provided by the significant correlation between intellectual ability and academic self-efficacy.

Bandura (1977a) also stated that cognitive processing plays an important role in determining how efficacy information is integrated. Integrating and forming efficacy beliefs can be somewhat complicated because efficacy information is obtained from several sources, and social and situational circumstances also can influence their formation (Bandura, 1977a). Although intellectual ability is not the same as cognitive processing ability, it's possible that students with lower intellectual ability levels have more difficulty



processing and integrating self-efficacy information. This may then lead to lower self-efficacy beliefs. Thus, cognitive processing ability may be an intervening variable in the relationship between intellectual ability and academic achievement. Further research is necessary to elucidate the relationships between intellectual ability, cognitive processing ability, and academic self-efficacy.

No doubt many other factors may help explain the relationship between academic self-efficacy and intellectual ability. The results of this correlational analysis cannot determine a causal direction, nor determine any intervening variables. No previous research evaluating the relationship between self-efficacy and intelligence could be found, especially for school-aged children. Thus, this research provides some important preliminary information about the relationship between these two constructs. However, further research is necessary in order to provide answers to the questions which arise from this discovery.

Significant correlations also were obtained between the academic self-efficacy factor and all three achievement scores. Previous research had demonstrated that the ASSESS, which was a forerunner of the SSCS, was a good predictor of academic achievement. Schunk (1984,

1988) provided evidence that enhancing academic self-efficacy beliefs improved mathematics achievement. However, research had not examined the relationship between self-efficacy and academic achievement as measured by a standardized achievement test. The current study provided additional useful information because more comprehensive measures of both self-efficacy and achievement were used.

The moderately strong, significant correlations between academic self-efficacy and the three achievement areas indicate that as self-efficacy increases, so does academic achievement. This relationship is illustrated by examining the three SSCS "reading" items. These are "I can read instructions in a book and follow them correctly", "I can follow my teacher's directions for doing my reading work", and "I can read aloud in class without feeling nervous". The significant correlations which were obtained provide evidence that students who feel more efficacious in doing these three things also achieve in reading at a higher level than less efficacious students.

This finding is important to note, especially because the SSCS was utilized to measure self-efficacy. As was discussed previously, the SSCS is behaviorally based. Because it is comprised of individual behaviors,

it's possible to examine a student's responses and to develop interventions to teach the student those behaviors which they rated as "Not Confident". Then, as academic self-efficacy increases, academic achievement may improve as well. Further research is necessary to determine if academic achievement improves as a result of enhancing self-efficacy beliefs, as well as to provide more clarification of the association between academic self-efficacy beliefs and academic achievement.

The third research hypothesis postulated that the correlation between academic self-efficacy and social skills would be weaker than the correlation between social self-efficacy and social skills, with the latter being significant. However, the correlational analysis revealed strong, significant correlations between both social skills and social self-efficacy and social skills and academic self-efficacy. There are several possible explanations for this unexpected finding. First, many academic self-efficacy items contain a "social skills" component. For example, the SSCS item "I can use a nice tone of voice in classroom discussions with my teacher" is an important academic behavior that is primarily interpersonal in nature. Other academic self-efficacy items which are interpersonal in nature include "I can ignore classmates when they whisper or talk during class"

or "I can speak in class when my teacher calls on me". Thus, perhaps the significant correlation between academic self-efficacy and social skills was obtained because many academic self-efficacy behaviors also are interpersonal in nature.

The SSRS and the SSCS academic factor have some similarity in item content. Examples of items which have similar content include "I can listen to my teacher talk about a subject for 20 minutes" (SSCS), and "I listen to the teacher when a lesson is being taught" (SSRS), or "I can ignore classmates when they whisper or talk during class" (SSCS) and "I ignore classmates who are clowning around in class" (SSRS) (please see the Appendices for a complete list of the items). Therefore, the modest degree of similarity in item content may be another reason the correlation between academic self-efficacy and social skills was similar to the correlation between social self-efficacy and social skills.

Overall, these findings provide additional evidence for the relationship between self-efficacy and social skills. Previous research has demonstrated relationships between social self-efficacy and sociometric status (Gresham et al., 1988b) as well as self-efficacy and social skills (Kendell, 1988). Both the SSRS and the SSCS are comprised of specific behaviors, which makes it

possible to ascertain which self-efficacy or social skills behaviors contribute to the student's overall beliefs. Thus, if a student obtained a low score, specific strategies could be designed and implemented to remediate the self-reported deficits. Enhancing low self-efficacy beliefs may lead to enhanced social skills beliefs, and vice versa. Additional research is necessary to explore this hypothesis. Future research also should evaluate the relationship between self-efficacy and social skills using measures which have little or no overlap in item content.

Several exploratory univariate analyses were conducted using academic and social self-efficacy as dependent variables and various family variables as independent variables. It was hypothesized (hypothesis #4) that certain family characteristics such as the number of siblings or parental marital status would have a systematic relationship with a child's self-efficacy. However, no significant differences in self-efficacy beliefs were found for different family variables. A possible explanation for this result is that only the social and academic self-efficacy subscales of the SSCS were included in this study, and the items on these scales are strongly related to the school environment. For example, whether or not a child feels confident in

asking the teacher a question wouldn't necessarily be affected by parental marital status or number of siblings. Family variables may be more likely to be related to general self-efficacy beliefs, or efficacy beliefs pertaining to the home environment. Further analyses of familial influences on self-efficacy should be conducted.

As hypothesized (hypothesis #5), academic achievement, intelligence, social skills, and family income significantly predicted both academic and social self-efficacy when entered into exploratory simultaneous regression equations. These variables accounted for a sizable amount of variance (65% for academic self-efficacy and 55% for social self-efficacy). Social skills was the only significant predictor and accounted for the most variance in both equations.

The next set of exploratory analyses eliminated social skills in order to determine whether the remaining variables could significantly predict self-efficacy. Intellectual ability, academic achievement, and income significantly predicted academic ( $p < .001$ ) and social self-efficacy ( $p < .05$ ). However, much less variance was accounted for (36% and 19%, respectively) than when social skills was included in the analyses.

Simultaneous regression analyses provide information regarding whether a group of variables can predict another variable. It was interesting to discover that all the variables (i.e., social skills, academic achievement, intellectual ability, and family income) could be combined to significantly predict self-efficacy. However, simultaneous regression analyses cannot provide adequate information to determine which variables can be combined to obtain the most parsimonious prediction equation. Step-wise regression analyses were utilized to obtain this information.

The exploratory step-wise analyses demonstrated that social skills and math achievement best predicted academic self-efficacy, while social skills and written language achievement best predicted social self-efficacy. Both two-variable models reached significance, and accounted for approximately the same amount of variance as did the six-variable model utilized in the simultaneous analyses. Thus, the results of this study indicate that social skills and one area of academic achievement are good predictors of self-efficacy beliefs. It must be remembered that high correlations were obtained between the IQ and academic achievement test scores. Such high correlations result in redundant information in regression analyses. Thus, for the

present regression analyses, social skills and one area of academic achievement were sufficient to significantly predict self-efficacy.

Many variables which are part of self-efficacy's nomological network were examined in this study. A construct's nomological network consists of all constructs which are related to it. It is important to examine a construct's nomological network so that construct validity information can be provided. This is particularly necessary for constructs such as self-efficacy which cannot be empirically defined (Byrne, 1984). Construct validity of a measure, of course, should be well-established before it is ever used publicly.

The last hypothesis stated that the analyses completed in this study would provide useful construct validity information for the SSCS. The nomological network variables included in this study were intellectual ability, academic achievement, social skills, and family variables. Significant correlations were obtained between many of the variables, and the aforementioned variables were able to significantly predict academic and social self-efficacy. Therefore, additional evidence for the construct validity of the SSCS was provided by this study.



There are several concerns from this study that future research should address. The first concern regards the subject sample. Approximately 75% of the present sample were students who were referred for psychoeducational evaluations. This high proportion of referred students greatly hinders the generalizability of the results to other samples. Future research should evaluate the relationships between self-efficacy, intelligence, academic achievement, and social skills using a non-referred sample.

The second concern also relates to the subject sample. Although students with a wide range of intellectual abilities were utilized (see Table 1), approximately half of the subjects had intellectual ability scores in the range of 80-100. Additionally, the majority of subjects in this study were in grades 3-6. Thus, the analyses no doubt suffered from a restriction of range of both IQ scores and grade level. Future research should attempt to overcome these restriction of range problems. If future research can master these difficulties, the generalizability of the results should improve, and the strength of the relationships among the variables should be enhanced.

The present study generated several practical implications as well as future research needs. As stated

previously, a primary benefit of the SSCS is its behavioral emphasis. This emphasis is useful because it gives the scale treatment validity. Bandura (1977a, 1986) suggests that interventions serve as a means of creating and strengthening expectations of personal efficacy. Thus, the information garnered from the SSCS may be utilized to design interventions that may enhance the student's level and strength of self-efficacy beliefs.

Another implication of the current study regards the need for future research. The present study's results provide tentative information about the relationships between self-efficacy, intelligence, academic achievement, and social skills. Future research needs to expand on the results of this study and clarify these relationships. For example, future research needs to evaluate the relationship between self-efficacy and social skills using measures which have little or no overlap in item content. Research is also necessary to further evaluate the relationship between self-efficacy and various familial variables. Additionally, future research needs to evaluate the treatment validity of the SSCS. Gresham et al. (1988b) and Schunk (1984, 1988) discuss various interventions which have been used successfully to enhance student's self-efficacy beliefs.

These interventions include such things as participant modeling, attributional feedback, and role play. Future research should attempt to enhance self-efficacy beliefs by employing efficacy-based interventions, and should carefully evaluate the outcomes.

An important need for future research is to synthesize and critique the various social cognitive theories of behavioral change. These theories include self-efficacy, learned helplessness, achievement motivation, attributions, and locus of control. Additionally, various "self" theories such as self-concept and self-esteem are occasionally utilized to explain behavior. These theories are similar in many ways, but differ in their unique interpretation of how cognitions and self-percepts relate to behavior. Future research should attempt to integrate their similarities and clarify their differences. A void currently exists in the literature because of this lack of synthesis of similar theories.

In summary, the primary purposes of the current study were to explore the nomological network of self-efficacy and to provide more information on the construct validity of the SSCS. Kendell (1988) had provided some preliminary evidence for the construct validity of the SSCS. That study revealed significant relationships

between the SSCS, 2 measures of self-concept, and sociometric status. This study found significant relationships between the SSCS, intellectual ability, academic achievement, and social skills. These two studies complement each other, and together provide much valuable information about the construct of self-efficacy and the construct validity of the SSCS. Future research should attempt to address the concerns of the current study, and should strive to provide further clarification of self-efficacy's network of relationships.

References

- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.
- Bandura, A. (1977b). Social learning theory. Englewood Cliffs, N.J.: Prentice-Hall.
- Bandura, A. (1978). Reflections on self-efficacy. Advances in Behaviour Research and Therapy, 1, 237-269.
- Bandura, A. (1981). Self-referent thought: A developmental analysis. In J. H. Flavell and L. Ross (Eds.) Social Cognitive Development: Frontiers and Possible Futures (pp. 185-210). Cambridge, MA: Harper and Row.
- Bandura, A. (1982a). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.
- Bandura, A. (1982b). The assessment and predictive generality of self-percepts of efficacy. Journal of Behavior Therapy and Experimental Psychiatry, 13, 195-199.
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

- Bandura, A. (1989a). Regulation of cognitive processes through perceived self-efficacy. Developmental Psychology, 25, 729-735.
- Bandura, A. (1989b). Human agency in social cognitive theory. American Psychologist, 44, 1175-1184.
- Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. Journal of Personality and Social Psychology, 45, 1017-1028.
- Byrne, B. M. (1984). The general/academic self-concept nomological network: A review of construct validation research. Review of Educational Research, 54, 427-446.
- Clark, L., Gresham, F. M., & Elliott, S. N. (1985). Development and validation of a social skills assessment measure: the TROSS-C. Journal of Psychoeducational Assessment, 4, 347-356.
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. Journal of Personality and Social Psychology, 31, 674-685.
- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. Journal of Personality and Social Psychology, 25, 109-116.

- Evans, S. (1987). Self-evaluative mediators of academic achievement. Unpublished manuscript. Louisiana State University, Baton Rouge.
- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. Journal of Educational Psychology, 76, 569-582.
- Gresham, F. M., & Elliott, S. N. (1990). The Social Skills Rating System. Circle Pines, MN: American Guidance Service.
- Gresham, F. M., Elliott, S. N., & Black, F. L. (1987). Teacher-rated social skills of mainstreamed mildly handicapped and nonhandicapped children. School Psychology Review, 16, 78-88.
- Gresham, F. M., Elliott, S. N., & Evans, S. (in preparation). The Student Self-Concept Scale. Circle Pines, MN: American Guidance Service.
- Gresham, F. M., Evans, S., & Elliott, S. N. (1988a). Self-efficacy differences among mildly handicapped, gifted, and nonhandicapped students. The Journal of Special Education, 22, 231-241.
- Gresham, F. M., Evans, S., & Elliott, S. N. (1988b). Academic and social self-efficacy scale: Development and initial validation. Journal of Psychoeducational Assessment, 6, 125-138.

- Hillman, S. (1984, April). Contributions to achievement: The role of expectations and self-efficacy in students, teachers and principals. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Kaufman, A. S., & Kaufman, N. L. (1983). Kaufman Assessment Battery for Children. Circle Pines, MN: American Guidance Service.
- Kaley, R., & Cloutier, R. (1984). Developmental determinants of self-efficacy predictiveness. Cognitive Therapy and Research, 8, 643-656.
- Kazdin, A. E. (1978). Conceptual and assessment issues raised by self-efficacy theory. Advances in Behaviour Research and Therapy, 1, 177-185.
- Kendell, G. K. (1988). The reliability and validity of the Multidimensional Self-Concept Scale. Unpublished master's thesis, Louisiana State University, Baton Rouge.
- Kendell, G. K., Hebert, G. W., & Gresham, F. M. (1989). Using teachers to rate student's self-concept: An exploratory study. Unpublished manuscript. Louisiana State University, Baton Rouge.
- Keyser, V., & Barling, J. (1981). Determinants of children's self-efficacy beliefs in an academic



environment. Cognitive Therapy and Research, 5, 29-40.

- Lachman, M. E. (1986). Locus of control in aging research: A case for multidimensional and domain-specific assessment. Journal of Psychology and Aging, 1, 34-40.
- Lachman, M. E., & Leff, R. (1989). Perceived control and intellectual functioning in the elderly: A 5-year longitudinal study. Developmental Psychology, 25, 722-728.
- Lachman, M. E., Baltes, P. B., Nesselroade, J. R., & Willis, S. L. (1982). Examination of personality-ability relationships in the elderly: The role of the contextual (interface) assessment mode. Journal of Research in Personality, 16, 485-501.
- Lefcourt, H. M. (Ed.). (1981). Research with the locus of control construct: Assessment methods (Vol. 1). New York: Academic Press.
- Levenson, H. (1974). Activism and powerful others: Distinctions within the concept of internal-external control. Journal of Personality Assessment, 38, 377-383.
- Mischel, W. (1977). On the future of personality measurement. American Psychologist, 32, 246-254.

- Ollendick , T. H., & Schmidt, C. R. (1987). Social learning constructs in the prediction of peer interaction. Journal of Clinical Child Psychology, 16, 80-87.
- Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. Child Development, 57, 700-711.
- Relich, J. D., Debus, R. L., & Walker, R. (1986). The mediating role of attribution and self-efficacy variables for treatment effects on achievement outcomes. Contemporary Educational Psychology, 11, 195-216.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80, (1, Whole No. 609).
- Rotter, J. B. (1975). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. Journal of Consulting and Clinical Psychology, 43, 56-67.
- Schack, Gina (1986, April). Self-efficacy for creative productivity. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

- Schunk, D. H. (1982b). Verbal self-regulation as a facilitator of children's achievement and self-efficacy. Human Learning, 1, 265-277.
- Schunk, D. H. (1983b). Progress self-monitoring: Effects on children's self-efficacy and achievement. Journal of Experiental Education, 51, 89-93.
- Schunk, D. H. (1984). Self-efficacy perspective on achievement behavior. Educational Psychologist, 19, 48-58.
- Schunk, D. H. (1985a). Participation in goal setting: Effects on self-efficacy and skills of learning-disabled children. The Journal of Special Education, 19, 307-316.
- Schunk, D. H. (1987). Peer models and children's behavioral change. Review of Educational Research, 57, 149-174.
- Schunk, D. H. (1988, April). Perceived self-efficacy and related social cognitive processes as predictors of student academic performance. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Schunk, D. H., Hanson, A. R., & Cox, P. D. (1987). Peer-model attributes and children's achievement behaviors. Journal of Educational Psychology, 79, 54-61.

- Seligman, M.E. (1975). Helplessness. San Francisco: Freeman.
- Shell, D. F. (1988, December). Self-efficacy and outcome expectancy: Motivational aspects of reading and writing performance. Paper presented at the National Reading Conference, Austin, TX.
- Stedtnitz, U. (1986). The influence of educational enrichment on self-efficacy and interest levels in young children. Topics in Early Childhood Education, 6, 39-49.
- Wechsler, E. (1974). Manual for the Wechsler Intelligence Scale for Children - Revised. New York: Psychological Corporation.
- Weiner, B. (1972a). Attribution theory, achievement motivation, and the educational process. Review of Educational Research, 42, 203-215.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. Journal of Educational Psychology, 71, 3-25.
- Wheeler, V. A., & Ladd, G. W. (1982). Assessment of children's self-efficacy for social interactions with peers. Developmental Psychology, 18, 795-805.
- Witt, J. C., Elliott, S. N., Gresham, F. M., & Kramer, J. J. (1988). Assessment of Special Children. Glenview, IL: Scott Foresman and Company.

- Woodcock, R. W. (1978). Woodcock-Johnson Psychoeducational Battery. Allen, TX: DLM Teaching Resources.
- Zimmerman, B. J., & Ringle, J. (1981). Effects of model persistence and statements of confidence on children's self-efficacy and problem solving. Journal of Educational Psychology, 73, 485-493.

## Self-Efficacy

### Appendix A

#### Academic Self-Efficacy Items

1. I can read aloud without feeling nervous.
2. I can sit in class without daydreaming during a lesson.
3. I can use a nice tone of voice in classroom discussions with my teacher.
4. I can sit at my desk for 2 minutes without moving around or fidgeting.
5. I can finish my classwork on time.
6. I can listen to my teacher talk about a subject for 20 minutes.
7. I can ask for my teacher's help without feeling ashamed or upset.
8. I can laugh at myself when I make silly mistakes.
9. I can read instructions in a book and follow them correctly.
10. I can follow my teacher's directions for doing my reading work.
11. I can ignore classmates when they whisper or talk during class.
12. I can do my math work without help.
13. I can speak in class when my teacher calls on me.

- 14. I can listen when my teacher is presenting a lesson.
- 15. I can remember when class projects are due.
- 16. I can follow classroom rules.
- 17. I can do my homework on time.
- 18. I can go to the board and do work when my teacher asks me to.

Appendix B

Social Self-Efficacy Items

1. I can ask my teacher for help when others hit me or push me around.
2. I can stand up for my friends when others treat them unfairly.
3. I can tell adults when they have done something nice for me.
4. I can introduce myself to new people without being told to by others.
5. I can politely refuse to do things that are wrong even when other kids try to talk me into doing them.
6. I can make friends easily.
7. I can control my temper in arguments with other kids.
8. I can ask classmates to play a game with me.
9. I can end arguments with my parents calmly.
10. I can say nice things to classmates when they have done something well.
11. I can tell kids my age that I like them without feeling embarrassed.
12. I can ask other kids if I may join the game they are playing.
13. I can show others that I feel good about myself.
14. I can take turns in games or other activities.



15. I can tell my teacher when he or she has accused me of doing something I didn't do.
16. I can talk things over calmly with kids my age when we disagree.
17. I can ignore classmates when they tease me or call me a name.
18. I can tell classmates how I feel when they upset me or hurt my feelings.
19. I can share my possessions with others.
20. I can do things to be liked by my classmates.

Appendix C

Social Skills Questionnaire - Grades 3-6

1. I make friends easily.
2. I smile, wave, or nod at others.
3. I ask before using other people's things.
4. I ignore classmates who are clowning around in class.
5. I feel sorry for others when bad things happen to them.
6. I tell others when I am upset with them.
7. I disagree with adults without fighting or arguing.
8. I keep my desk clean and neat.
9. I am active in school activities such as sport or clubs.
10. I do my homework on time.
11. I tell new people my name without being asked to tell it.
12. I control my temper when people are angry with me.
13. I politely question rules that may be unfair.
14. I let friends know I like them by telling or showing them.
15. I listen to adults when they are talking with me.
16. I show that I like compliments or praise from friends.

17. I listen to my friends when they talk about problems they are having.
18. I avoid doing things with others that may get me in trouble with adults.
19. I end fights with my parents calmly.
20. I say nice things to others when they have done something well.
21. I listen to the teacher when a lesson is being taught.
22. I finish classroom work on time.
23. I start talks with class members.
24. I tell adults when they have done something for me that I like.
25. I follow the teacher's directions.
26. I try to understand how my friends feel when they are angry, upset, or sad.
27. I ask friends for help with my problems.
28. I ignore other children when they tease me or call me names.
29. I accept people who are different.
30. I use my free time in a good way.
32. I use a nice tone of voice in classroom discussions.

33. I ask adults for help when other children try to hit me or push me around.

34. I talk things over with classmates when there is a problem or an argument.

Appendix D

Social Skills Questionnaire - Grades 7-12

1. I make friends easily.
2. I say nice things to others when they have done something well.
3. I ask adults for help when other children try to hit me or push me around.
4. I am confident on dates.
5. I try to understand how my friends feel when they are angry, upset, or sad.
6. I listen to adults when they are talking with me.
7. I ignore other children when they tease me or call me names.
8. I ask friends for help with my problems.
9. I ask before using other people's things.
10. I disagree with adults without fighting or arguing.
11. I avoid doing things with others that may get me in trouble with adults.
12. I feel sorry for others when bad things happen to them.
13. I do my homework on time.
14. I keep my desk clean and neat.
15. I do nice things for my parents like helping with household chores without being asked.

16. I am active in school activities such as sports or clubs.
17. I finish classroom work on time.
18. I compromise with parents or teachers when we have disagreements.
19. I ignore classmates who are clowning around in class.
20. I ask someone I like for a date.
21. I listen to my friends when they talk about problems they are having.
22. I end fights with my parents calmly.
23. I give compliments to members of the opposite sex.
24. I tell other people when they have done something well.
25. I smile, wave, or nod at others.
26. I start conversations with opposite-sex friends without feeling uneasy or nervous.
27. I accept punishment from adults without getting mad.
28. I let friends know I like them by telling or showing them.
29. I stand up for my friends when they have been unfairly criticized.
30. I invite others to join in social activities.
31. I use my free time in a good way.
32. I control my temper when people are angry with me.

- 33. I get the attention of members of the opposite sex without feeling embarrassed.
- 34. I take criticism from my parents without getting angry.
- 35. I follow the teacher's directions.
- 36. I use a nice tone of voice in classroom discussions.
- 37. I ask friends to do favors for me.
- 38. I start talks with classroom members.
- 39. I talk things over with classmates when there is a problem or an argument.

Table 1

Subject Demographic Information

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Subject		
Characteristics	Average	Range
<hr/>		
Age	10.70	8 - 16
Grade	4.83	2 - 11
Family Income	23,000	5 - 70,000
Number of Siblings	1.34	0 - 5
Intellectual Ability	99.53	66 - 137
Reading Achievement	97.70	65 - 135
Math Achievement	96.81	65 - 135
Written Language Achievement	96.94	65 - 135

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Table 2

Correlation Coefficients

	Ac. S-E	Soc. S-E	SS (El)	SS (J.S.)	IQ	Read Ach.	Math Ach.	W.L. Ach.	In.
Ac. S-E	1.00	<u>.66</u>	<u>.70</u>	<u>.79</u>	<u>.50</u>	<u>.40</u>	<u>.56</u>	<u>.46</u>	.17
Soc. S-E		1.00	<u>.71</u>	<u>.77</u>	.34	.28	<u>.36</u>	<u>.36</u>	.18
SS-El			1.00		.26	.15	.26	.22	.01
SS-J.S.				1.00	<u>.48</u>	<u>.76</u>	<u>.62</u>	<u>.85</u>	<u>.65</u>
IQ					1.00	<u>.71</u>	<u>.77</u>	<u>.65</u>	.30
Read Ach.						1.00	<u>.73</u>	<u>.89</u>	<u>.40</u>
Math Ach.							1.00	<u>.70</u>	<u>.38</u>
Wr. L. Ach.								1.00	
Income									1.00

Note: Significant correlations are underlined.

The above abbreviated correlations are : Ac. S-E = Academic Self-Efficacy, Soc. S-E = Social Self-Efficacy, SS (El) = Social Skills Rating System - Elementary Version (n=54), SS (J.S.) = Social Skills Rating System-Junior/Senior High Version (n=13), Wr. L. Ach. = Written Language Achievement

$p < .002$

Table 3

Predicting Academic and Social Self-Efficacy Using  
Multiple Regression Analysis

Academic Self-Efficacy		Social Self-Efficacy	
Prediction Variable	Criterion Value	Prediction Variable	Criterion Value
Constant	-12.96	Constant	-5.07
SSRS	.57** (.09)	SSRS	.65** (.11)
Math Achievement	.32 (.16)	Written Language Achievement	.20 (.24)
Written Language Achievement	.23 (.21)	Income	.11 (.11)
Reading Achievement	-.20 (.23)	Reading Achievement	-.09 (.26)
Intelligence Quotient	.08 (.15)	Math Achievement	.05 (.18)
Income	.02 (.10)	Intelligence Quotient	.03 (.17)
F-statistic	12.42**	F-statistic	8.43**
R <sup>2</sup>	.65	R <sup>2</sup>	.55
Adjusted R <sup>2</sup>	.59	Adjusted R <sup>2</sup>	.48

Note: Standard errors are in parentheses.

\*\* =  $p \leq .0001$ .

Table 4

Predicting Academic and Social Self-Efficacy without  
Social Skills

Academic Self-Efficacy		Social Self-Efficacy	
Prediction Variable	Criterion Value	Prediction Variable	Criterion Value
Constant	.83	Constant	12.99
Math Achievement	.44* (.19)	Written Language	.46 (.27)
Reading Achievement	-.39 (.26)	Reading Achievement	-.42 (.30)
Written Language Achievement	.38 (.24)	Math Achievement	.18 (.21)
Intelligence Quotient	.19 (.18)	Intelligence Quotient	.17 (.20)
Income	-.02 (.12)	Income	.06 (.13)
F-statistic	6.18**	F-statistic	2.51*
R <sup>2</sup>	.36	R <sup>2</sup>	.19
Adjusted R <sup>2</sup>	.31	Adjusted R <sup>2</sup>	.11

Note: Standard errors are in parentheses.

\*  $p \leq .05$

\*\*  $p \leq .001$

Table 5

Stepwise Regression Results

Step	Variable	Multiple			Sig.
No.	Entered	R <sup>2</sup>	df	F value	Level
<b>(a) Academic Self-Efficacy</b>					
1	SSRS-Elementary	.488	1,51	48.66	P<.00
2	Math Achievement	.643	2,49	44.18	P<.00
3	Written Language	.647	3,46	28.15	P<.46
4	Reading	.649	4,45	20.81	P<.64
5	IQ	.651	5,44	16.43	P<.61
6	Income	.651	6,41	12.77	P<.88
<b>(b) Social Self-Efficacy</b>					
1	SSRS-Elementary	.499	1,51	50.89	P<.00
2	Written Language	.543	2,47	27.92	P<.03
3	Income	.554	3,44	18.26	P<.29
4	Math	.555	4,43	13.44	P<.64
5	Reading	.557	5,42	10.60	P<.75
6	IQ	.558	6,41	8.64	P<.82

## **CURRICULUM VITAE**

### **Personal Data**

**Name:** Ginger Kendell-Brainard

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Arkansas Psychological Examiner License Number: 90-4E  
Social Security Number: 482-96-0867  
Birthdate: 02/04/64

### **Education**

1990 (expected)	Ph.D., Louisiana St. University, Psychology
1989	M.A., Louisiana St. University, Psychology
1986	B.S., Iowa State University, Psychology

### **Honors**

1986	Member, Phi Beta Kappa
1986	Member, Phi Kappa Phi
1986	Graduated from Iowa State University with Honors and Distinction

### **Research Interests**

Self-efficacy assessment and  
enhancement  
Behavioral correlates of  
sociometric status  
Infant and early childhood  
feeding problems  
Behavioral consultation  
Social skills training

Professional ExperienceJuly 1989 - June 1990  
ArkansasInternship, University of  
for Medical Sciences

Duties: (1) Psychoeducational evaluations which were completed in conjunction with other diagnostic specialties (e.g., speech pathology, developmental pediatrics, social work), (2) Behavior therapy and parent training with outpatients, (3) Consultation with physicians and other medical professionals at Arkansas Children's Hospital.

Total hours will be around 2000  
Supervisors : Larry D. Evans,  
Psy.D. and Nick Long, Ph.D.

August 1988 - May 1989  
MemorialPracticum, Earl K. Long  
Hospital

Duties: Behavioral assessment and treatment of a variety of childhood disorders. Clients were children ages 2-16 referred by pediatricians for short-term treatment of behavior problems. Additional responsibilities included consultation with pediatric residents.

Total hours = 450  
Supervisor: Mary Lou Kelley,  
Ph.D.

Spring 1988Practicum,  
Greenwell Springs adolescent  
psychiatric hospital.Duties in the school:

Assessment and treatment of academic and behavior problems.

Duties in the hospital: To learn how institutional settings work to help troubled adolescents and to assist with treatment decisions.

Total hours = 145  
Supervisor: Roy Allen, Ph.D.

Fall 1987Practicum, Baton Rouge Public Schools

Duties: To learn the rules, regulations, and procedures for assessment and placement of students with special needs in Louisiana.

Total hours = 130

Supervisors: Erin Agostini, Ph.D.,

Joseph C. Witt, Ph.D.

Spring 1987Practicum, LSU Laboratory School

Duties: Assessment and treatment of academic and behavior problems for students in grades K-12. Interventions were classroom based and relied on behavioral principles and techniques.

Total hours = 130

Supervisor: Joseph C. Witt, Ph.D.

Publications

Gresham, F. M., & Kendell, G. K. (1987). School consultation research: Methodological critique and future research directions. School Psychology Review, 16, 306 - 316.

Acknowledged Contributions

Kelley, M. L., Kendell, G. K., & Miller, D. J. (1990). Case Illustrations. In Kelley, M. L., School-Home Notes. New York: Guilford Press.

Unpublished Research Projects

Master's Thesis: Establishing the Reliability and Validity of the Multidimensional Self-Concept Scale.

Intermediate Research Project: The Measurement and Correlates of Self-Concept in Young Children.

Research Project for the General Exam: Overcorrection versus Reinforcement to Decrease Inappropriate Touching Behavior: A Case Study.

**Presentations - National:**

The Measurement of Self-Concept in Young Children. Poster presented at the 97th annual convention of the American Psychological Association. New Orleans, LA. August, 1989.

The Psychometric Properties and Uses of a Self-Efficacy Scale. Poster presented at the National Association of School Psychology Annual Convention. Boston, MA. April, 1989.

**Presentations - Regional:**

The Reliability, Validity, and Use of an Efficacy Based Self-Concept Scale. Paper presented at the ninth annual conference of the Louisiana School Psychology Association. Baton Rouge, LA. October, 1988.

**Invited Presentations**

Kendell, G. K. Child Behavior Management Strategies for Day Camp. Lecture presented to the YMCA summer day camp counselors. April, 1990.

Kendell, G. K. Childhood Depression: Symptoms and Potential Treatments. Lecture presented to the nursing staff at Arkansas Children's Hospital as part of the Pediatric Education Series. March, 1990.

Kendell, G. K. Child Development. Invited presentation for the professional staff at the Day Care at Arkansas Children's Hospital. March, 1990.

Kendell, G. K. A Behavioral Intervention for Feeding Difficulties: A Case Study. Invited presentation to the professional nursing and therapeutic staff at the Arkansas Easter Seal Society. February, 1990.

Kendell, G. K. Good Parenting Techniques and Childhood Development. Invited address for the Pine Bluff Junior League. January, 1990.



**Professional Affiliations**

- 1990 - present. Member, Society of Pediatric Psychology.  
1989 - present. Student affiliate, American Psychology Association.
- 1989 - present. Member, Arkansas School Psychology Association.  
1987 - present. Student member, National Association of School Psychologists.  
1985 - present. Member, Psy Chi, ISU Chapter.

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DOCTORAL EXAMINATION AND DISSERTATION REPORT

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Title of Dissertation: An Exploratory Study of Self-Efficacy's Network of Relationships

Approved:

Mary Lou Kelley  
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July 12, 1990